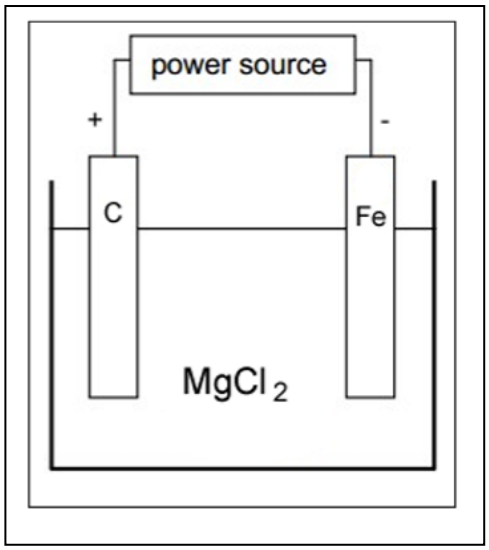
Video worksheet – Predicting the products of an electrolytic cell using the E^O series.

1. Consider the electrochemical cell shown on the right. Given that magnesium metal is less dense than the $MgCl_2$ electrolyte answer the following questions.



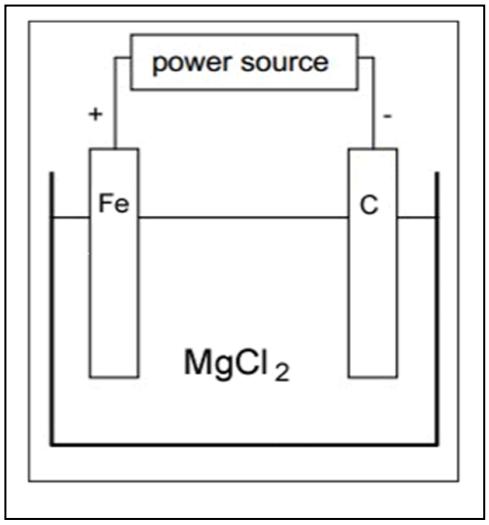
a) What are the conditions by which Mg metal can be produced?

b) On which electrode is the magnesium metal going to form?

c) What will form at the anode?

d) Is this cell safe? Explain

2. Consider the electrochemical cell shown on the right. Given that magnesium metal is less dense than the $MgCl_2$ electrolyte answer the following questions.

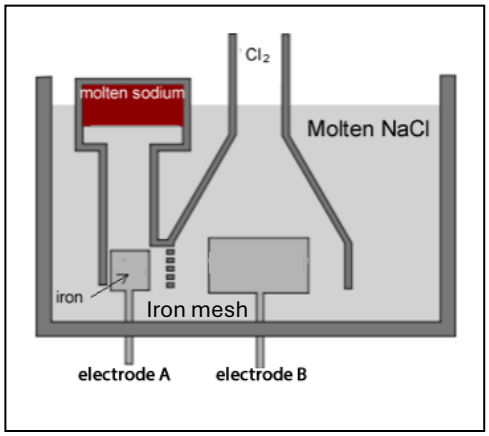


a) On which electrode is the magnesium metal going to form?

b) What will form at the anode?

c) Is this cell going to produce Mg (l) after many hours of operation? Explain

3. Consider the electrochemical cell shown on the right, known as a Downs Cell . It is used for industrial production of sodium metal. Answer the following questions given that sodium metal has a lower density than the molten NaCl electrolyte.



a) Identify the anode and cathode and give the polarity of each.

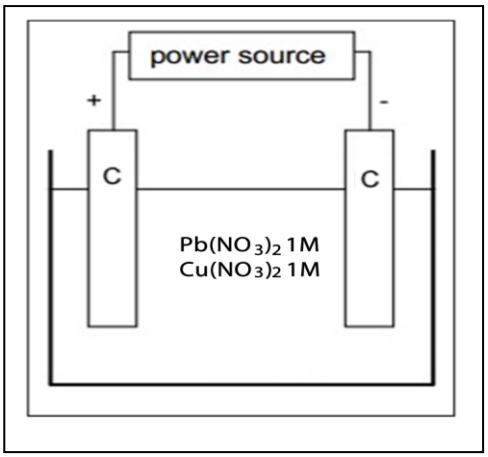
b) What will form at the

cathode _____

anode _____

c) What is the purpose of the iron mesh? Explain

4. Consider the electrochemical cell shown on the right. The electrolyte is composed of 1M $Pb(NO_3)_2$ and 1M $Cu(NO_3)_2$



a) Identify the anode and cathode and give the polarity of each.

b) What will form at the

cathode _____

anode _____